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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/331,723	08/18/1999	JOHN E. BOYNTON	2185-156PCT	2008

7590

04/09/2002

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EXAMINER

MEHTA, ASHWIN D

ART UNIT

PAPER NUMBER

1638

DATE MAILED: 04/09/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/331,723

Applicant(s)

BOYNTON ET AL.

Examiner

Ashwin Mehta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-42 is/are pending in the application.
- 4a) Of the above claim(s) 3, 5, 17, 19, 25-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-16, 18, 20-24, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The objection to claim 8 is moot, in light of its cancellation.
3. The rejection to claims 15, 16, 18, and 20-23 under 35 U.S.C. 101 is withdrawn, in light of the claim amendments.
4. The rejection to claims 20-24, and the provisional rejection to claims 1, 2, 4, and 6-11, under the judicially created doctrine of obviousness-like double patenting are withdrawn, in light of the terminal disclaimers submitted 25 January 2002.
5. The rejections to claims 1, 2, 4, 7-16, 18, and 20-24 under 35 U.S.C. 112, 2nd paragraph, are withdrawn, in light of the claim amendments or cancellations.
6. The rejection to claims 1, 2, 10, 11, 12-16, and 24 under 35 U.S.C. 102 (b) is withdrawn, in light of the claim amendments.
7. The rejection to claims 1, 2, 4, 10-16, 18, and 20-24 under 35 U.S.C. 103(a) is withdrawn, in light of the claim amendments.

Election/Restrictions

8. Applicants are reminded that a complete reply to the final rejection must include cancellation of non-elected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Objections

9. Claims 1-2 (both amended), 4 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 21 (amended), and 24 (amended) remain objected, for the reasons of record stated in the Office action mailed 14 August 2001 under item 3 for claims 1, 2, 4, 7-16, 18, 21, and 24. In the paper submitted 24 May 2001 Applicants elected for examination the nucleotide sequence encoding SEQ ID NO: 1 wherein Val 13 is replaced with methionine. The instant claims still encompass nucleotide sequences encoding SEQ ID NOs: 2 and 3.

Also note that when claims 1 and 15 are amended to no longer encompass non-elected SEQ ID NOs: 2 and 3, that they will be identical in scope to new claims 41 and 42.

10. Claim 7 remains objected to, for the reasons of record stated in the Office action mailed 14 August 2001 under item 4 for claims 7-9 and 21. The claim is still dependent on non-elected claims. The objection is withdrawn from claims 8, 9, and 21, in light of their cancellation or amendment.

Claim Rejections - 35 USC § 112

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11. Claims 1-2 (both amended), 4 (amended), 6 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 20-24 (all amended), and new claims 41 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the protein" in line 6. There is insufficient antecedent basis for this limitation in the claim. Likewise, there is insufficient antecedent basis for "the protein" in line 3 of claim 15, "said protein" in line 6 of claim 41 and line 3 of claim 42.

12. Claims 1-2 (both amended), 4 (amended), 6 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 20-24 (all amended) remain and new claims 41 and 42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record stated in the Office action mailed 14 August 2001 under item 12 for claims 1, 2, 4, 6-16, 18, and 20-24.

Applicants traverse the rejection in the paper submitted 14 January 2002. Applicants argue that the teachings of the Xho/PmaC2.6 fragment are evidence that the specification sufficiently describes the DNA fragment (response, page 13, last paragraph). Applicants argue that the specification teaches the Xho/PmaC2.6 fragment encodes a part of a protein, and that the protein has protoporphyrinogen oxidase (PPO) activity (response, page 13, last paragraph). Applicants argue that one can use the gene analysis program GENETYX to find the amino acid that corresponds to Val13 of SEQ ID NO: 1 (response, paragraph bridging pages 13-14).

Applicant's arguments have been fully considered as they apply to claims 1-2 (both amended), 4 (amended), 6 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 20-24 (all amended) remain and new claims 41 and 42, but were not found persuasive. While the amino acid sequence encoded by the Xho/PmaC2.6 fragment that confers herbicide resistance is known (SEQ ID NO: 1 wherein a methionine is substituted for valine 13), the amino acid sequence of the entire mutant protein that has PPO activity and that confers resistance to PPO-inhibiting herbicides is not described. Therefore, a correlation between the structure of the full protein that comprises SEQ ID NO: 1 with the methionine substitution for Val13, with its properties of PPO activity and ability to confer resistance to PPO-inhibiting herbicides has not been made. One then cannot establish the correlation for the protein that comprises the part of the protein encoded by the claimed DNA fragments that hybridize to SEQ ID NO: 1. One needs to make this correlation, since the proteins need to have the PPO activity of the whole protein that comprises SEQ ID NO: 1. Still, one cannot know if the protein, that comprises the portion that is encoded by the fragment that hybridizes to SEQ ID NO: 1, shares the same structure-function correlation as the protein that comprises the amino acid sequence encoded by the Xho/Pmac2.6 fragment, since the amino acid sequence of that latter protein is not described. Further, it is noted that the GENETYX program was used to compare the DNA sequences of Xho/Pmac2.6, from a wild type *Chlamydomonas* strain that is sensitive to PPO-inhibiting herbicides, with the DNA sequences encoding the entire PPO enzymes of *Arabidopsis thaliana* and maize (specification, page 54, lines 5-25). One cannot use this analysis to determine the amino acid corresponding to Val13 of SEQ ID NO: 1 of the sequence encoded by the claimed hybridizing sequences, since the entire amino sequence of the PPO enzyme that comprises SEQ ID NO: 1 is not described.

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Furtherstill, one would need to determine the amino acid sequence of both mutant and wild type proteins, to confirm that an amino acid change was made in the first place.

13. Claims 1-2 (both amended), 4 (amended), 6 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 20-24 (all amended) remain and new claims 41 and 42 are rejected under 35 U.S.C. 112, 1st paragraph, for the reasons of record stated in the Office action mailed 14 August 2001 under item 13 for claims 1, 2, 4, 6-16, 18, and 20-24.

Applicants traverse the rejection in the paper filed 14 January 2002. Applicants argue that Example 7 of the specification teaches that DNA fragments can be prepared by restriction digestion, and that the rejection does not consider why restriction digestion is insufficient for making the DNA fragment (response, page 16, 2nd paragraph). Applicants also argue that methods for transforming *Chlamydomonas*, plants and plant cells are also taught (response, 2nd paragraph and paragraph bridging pages 16-17).

Applicant's arguments have been fully considered as they apply to claims 1-2 (both amended), 4 (amended), 6 (amended), 7, 10-14, 15-16 (both amended), 18 (amended), 20-24 (all amended) remain and new claims 41 and 42, but were not found persuasive. That restriction digestion cannot be used to make DNA fragments is not at issue. Nor is the availability of plant transformation techniques an issue. Rather, the specification does not teach how one would determine that the protein that comprises the sequence that is encoded by the DNA fragment that hybridizes to SEQ ID NO: 1 has the same PPO activity as that protein, given that the full amino acid sequence of that protein that comprises SEQ ID NO: 1 is not taught by the specification. In the absence of this correlation, undue experimentation would be required by one skilled in the art

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to determine if the protein that comprises the sequence encoded by the hybridizing sequence has the same structure/function correlation as the protein that comprises SEQ ID NO: 1.

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13. No claim is allowed.

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14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this or earlier communications from the examiner should be directed to Ashwin Mehta, whose telephone number is 703-306-4540. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays from 8:00 A.M to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy

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Nelson, can be reached at 703-306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 and 703-872-9306 for regular communications and 703-872-9307 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

A.M.
March 28, 2002



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